

FIG.1

Treatment: - TPA TPA TPA TPA
 Substrate: WT WT WT WT GST Ala
 Time: 0 10 30 30

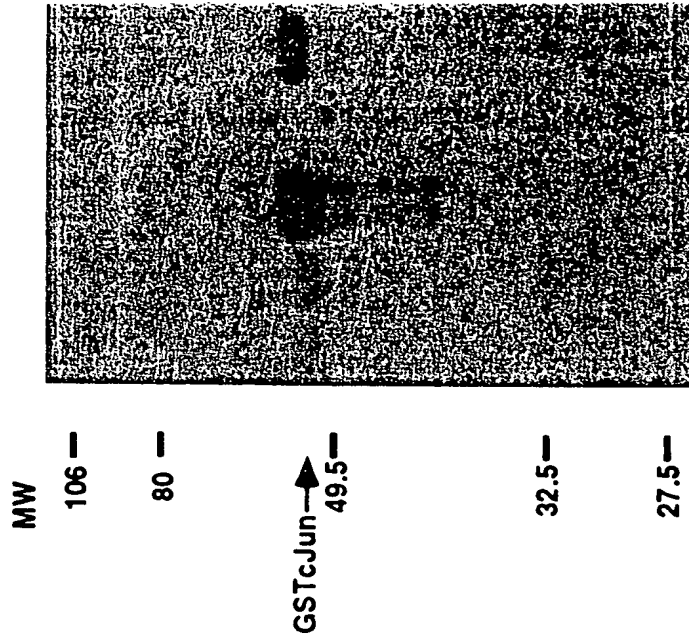


FIG. 2B

Treatment: - UV UV UV UV UV TPA
 Substrate: WT WT WT WT GST Ala WT
 Time: 0 5 30 30 30 5 30

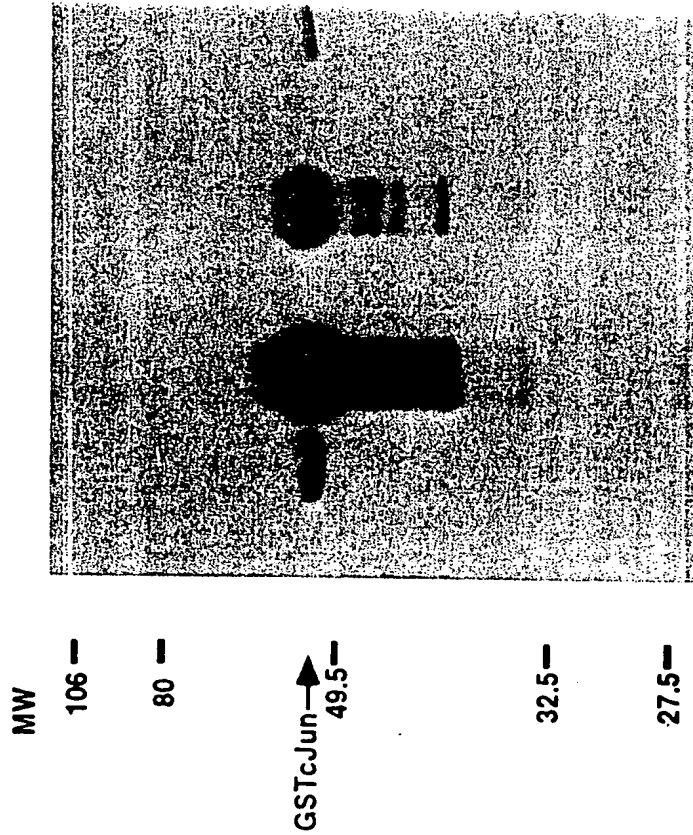
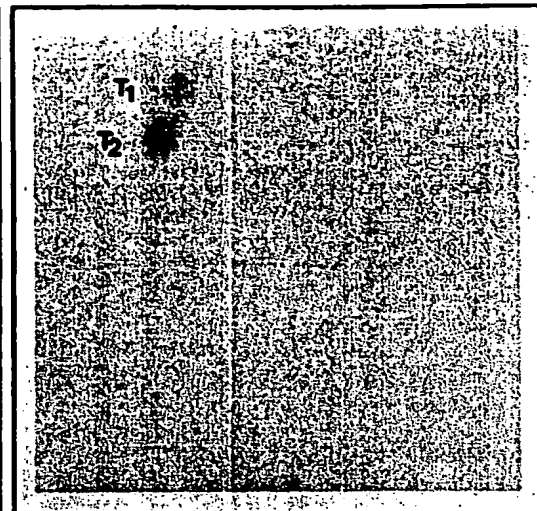
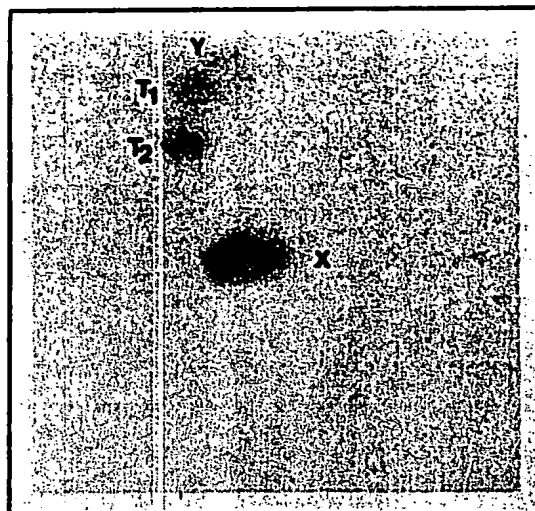


FIG. 2A

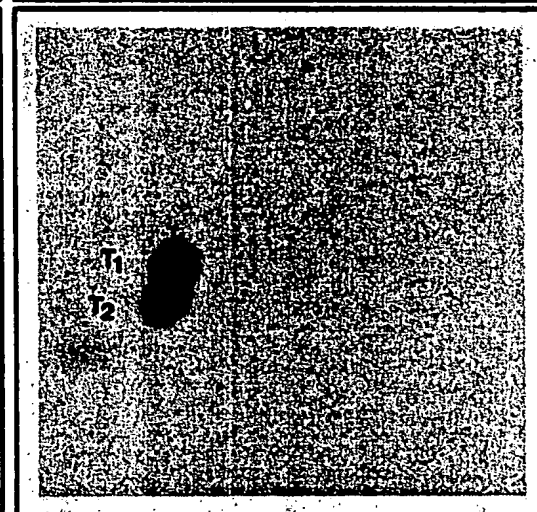
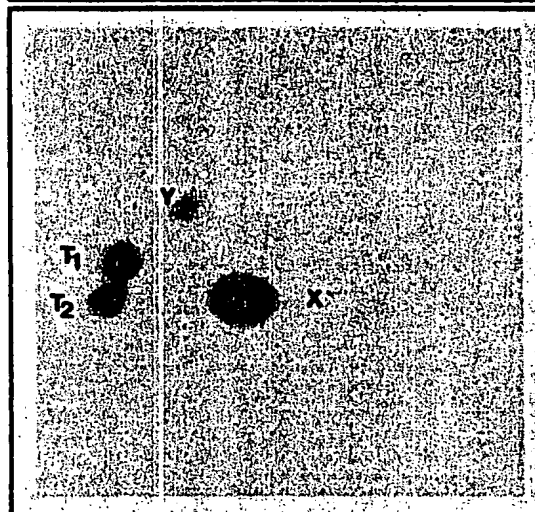
WT

A63/73

FR3T3 Ras



Hela



Jurkat

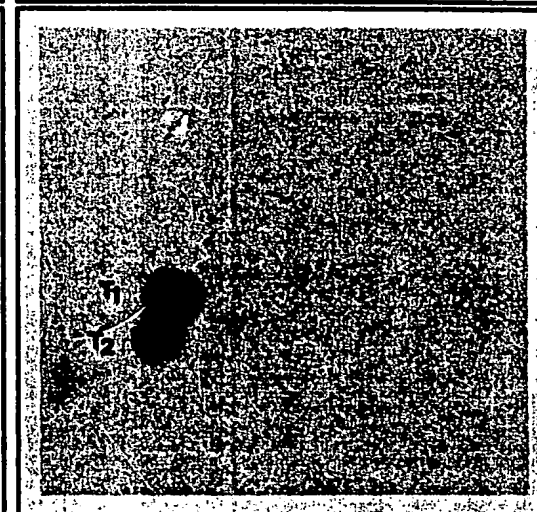
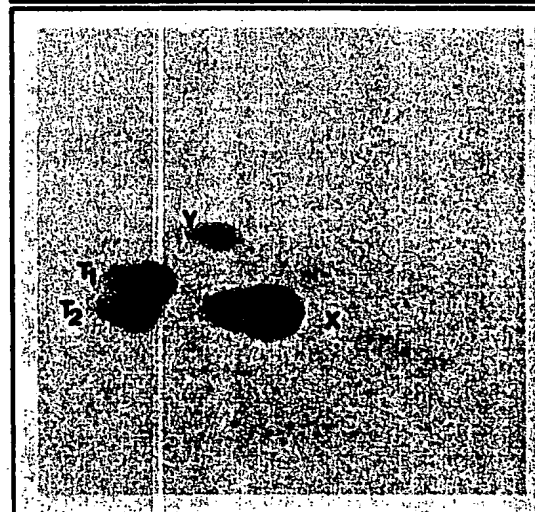


FIG. 3A

In Vitro

In Vivo

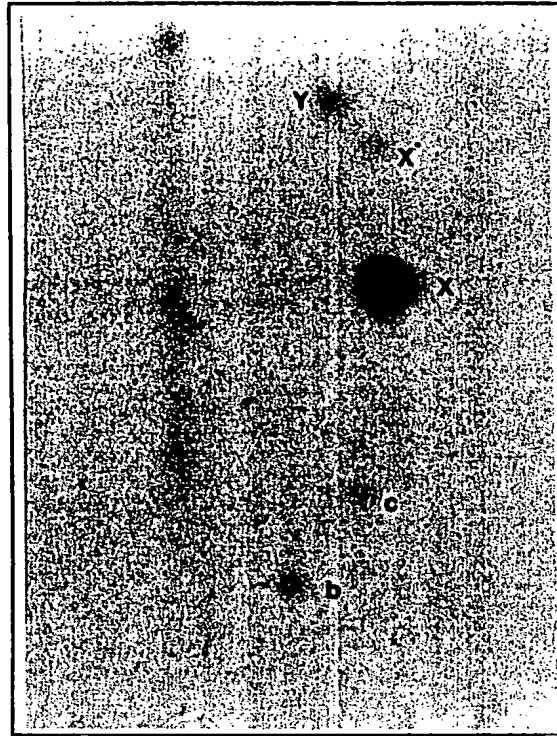
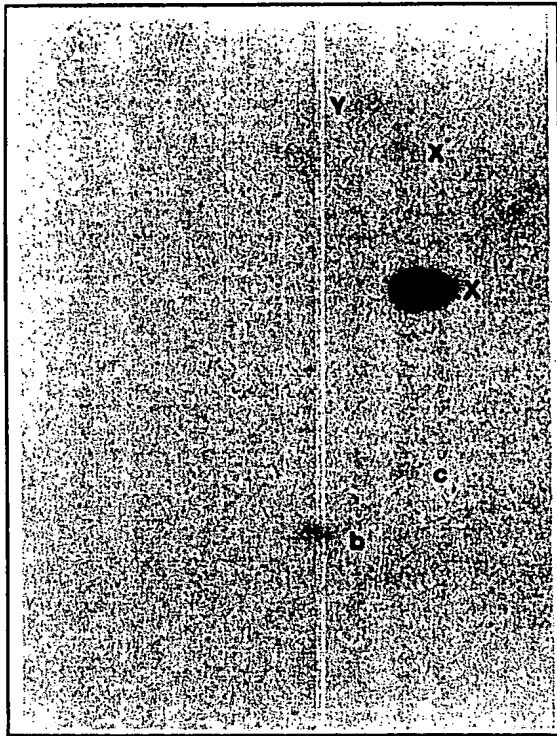


FIG. 3B

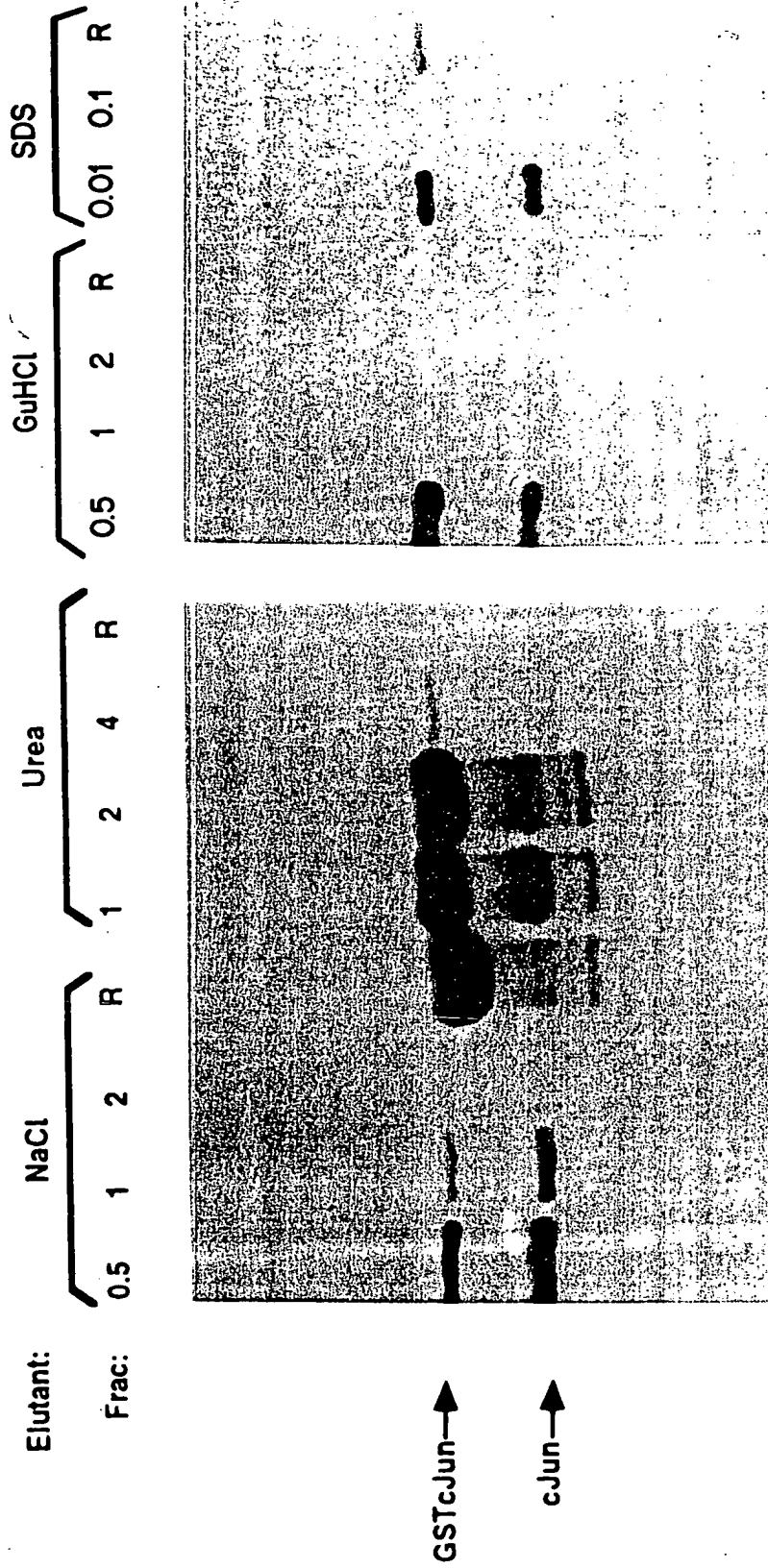


FIG. 4A

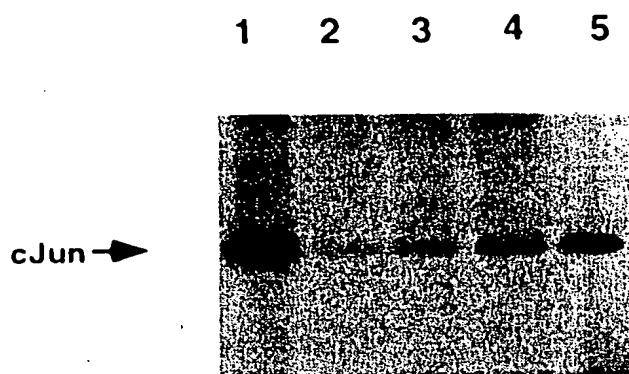


FIG. 4B

Substrate: - +

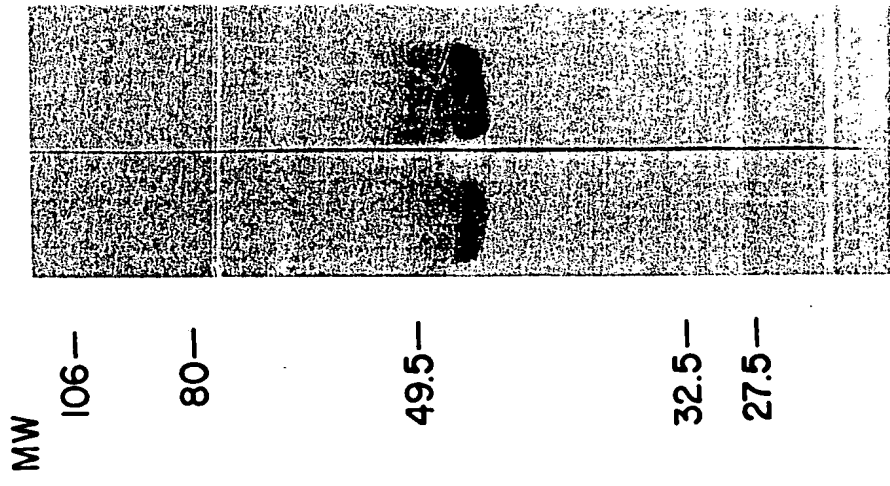


FIG. 5A

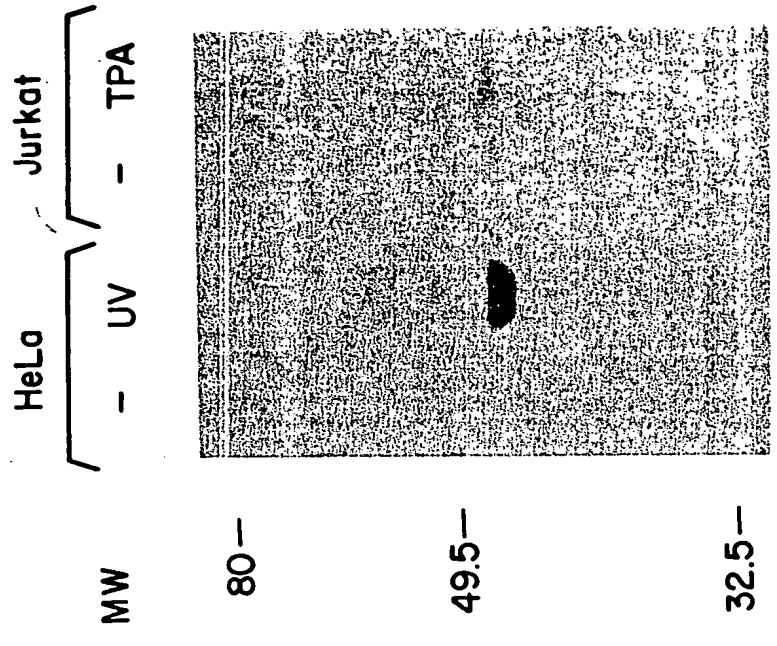


FIG. 5B

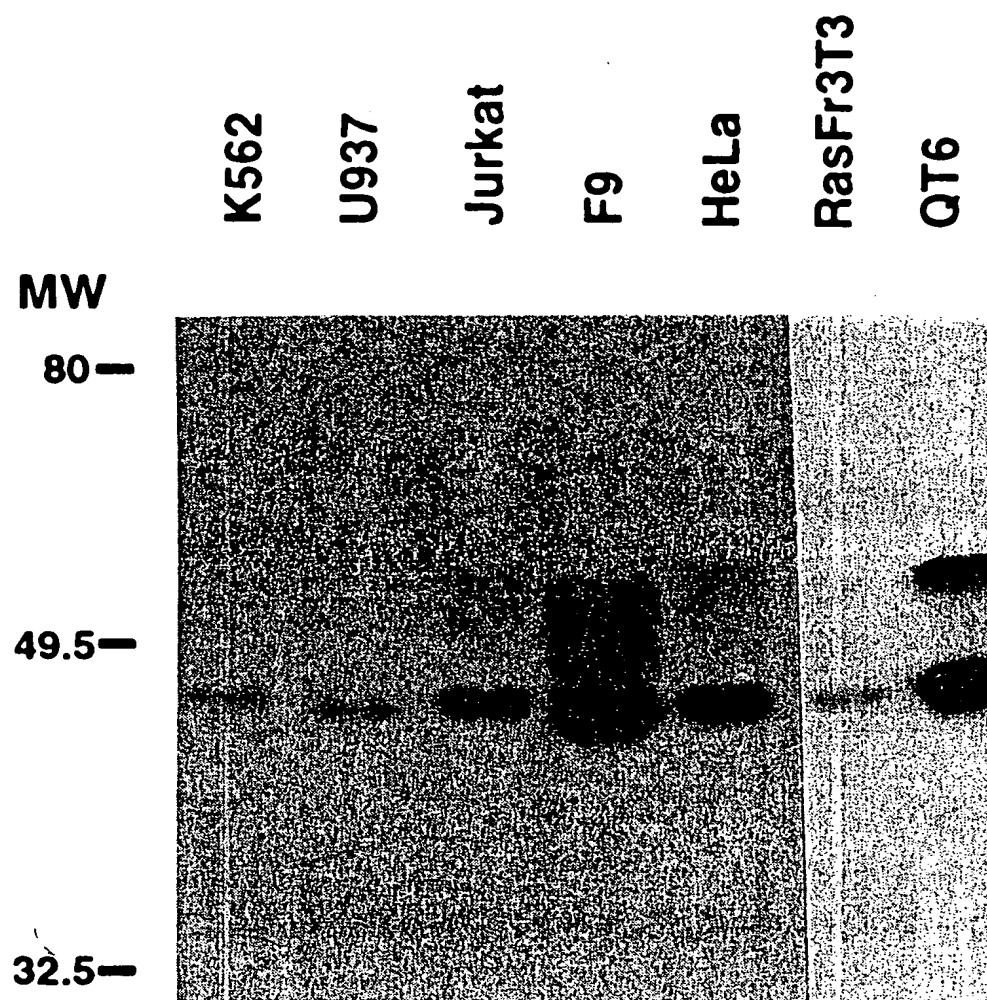
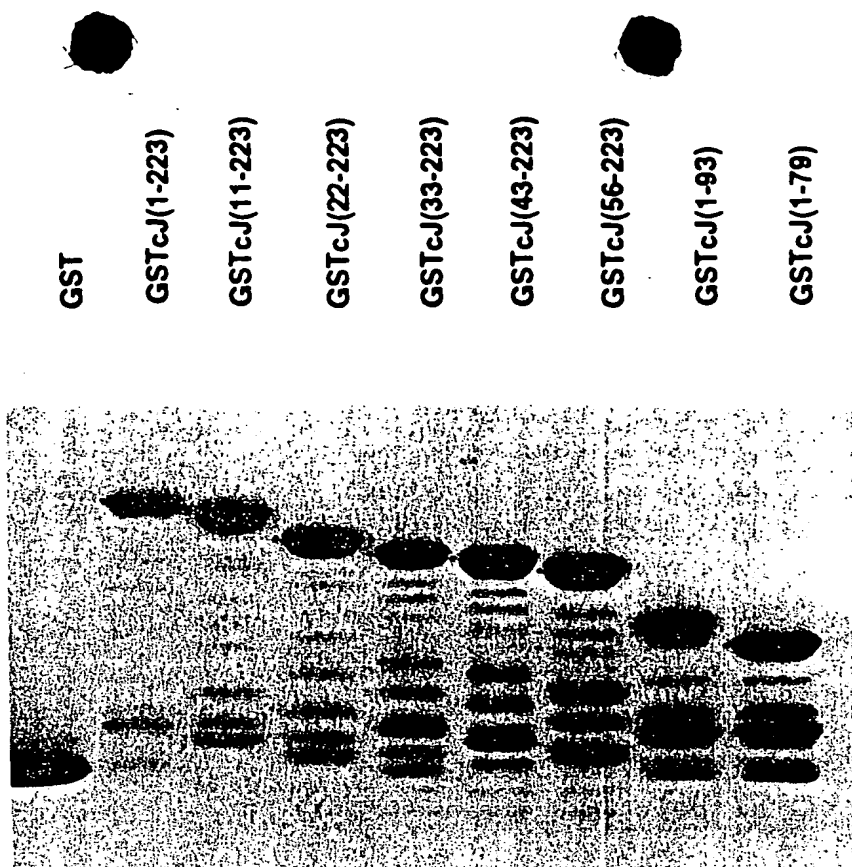


FIG. 5C

Protein Gel

FIG. 6A



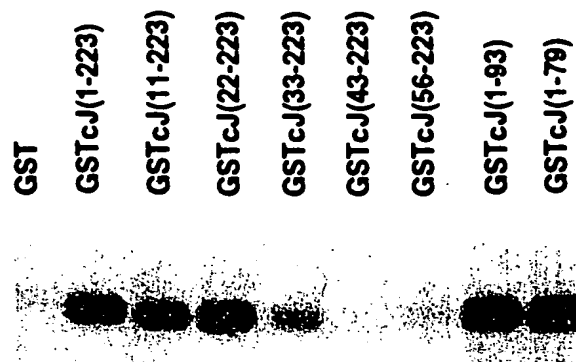
³²P-Immobilized
Substrate

FIG. 6B



³²P-Exogenous
Substrate

FIG. 6C



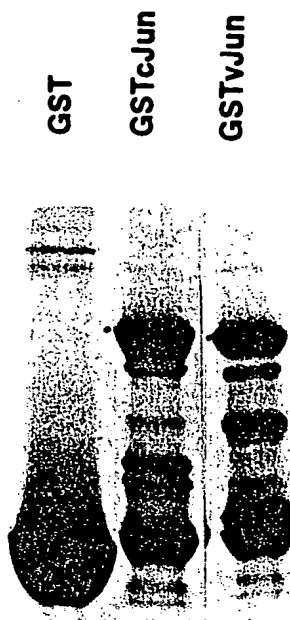


FIG. 7A



FIG. 7B

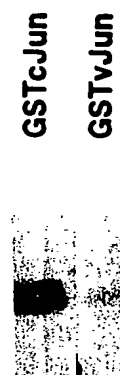


FIG. 7C

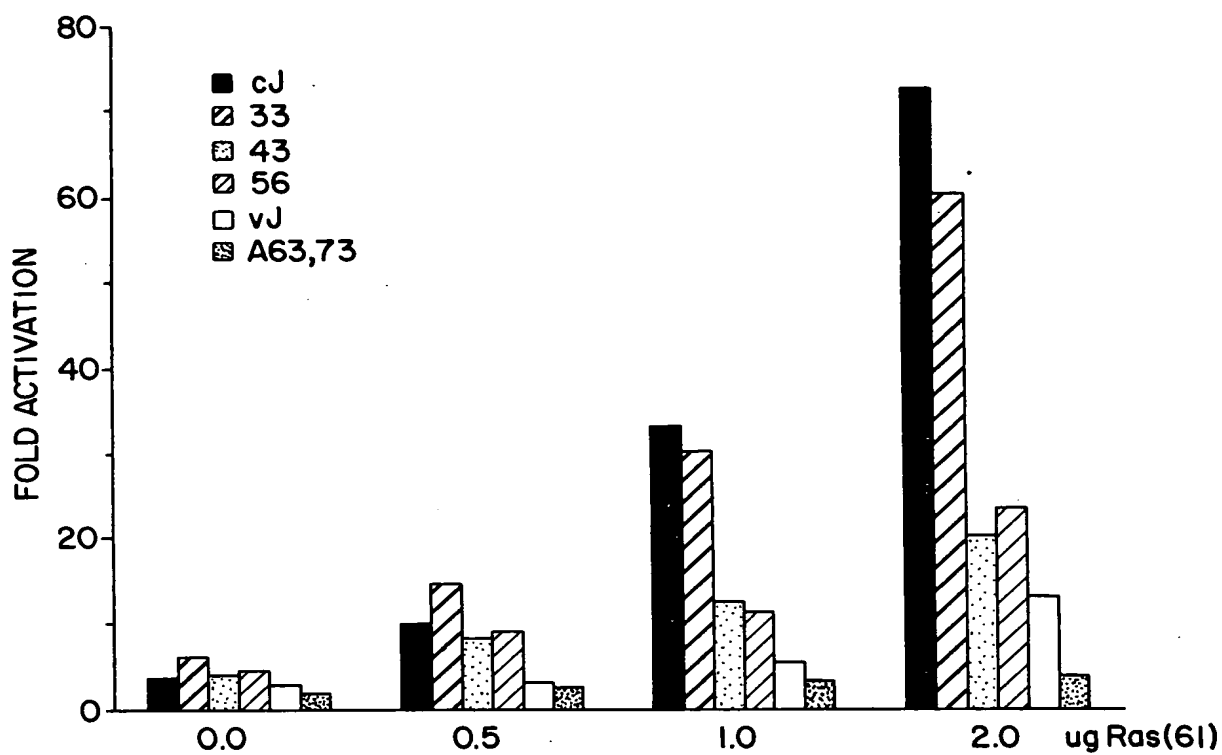


FIG. 8A

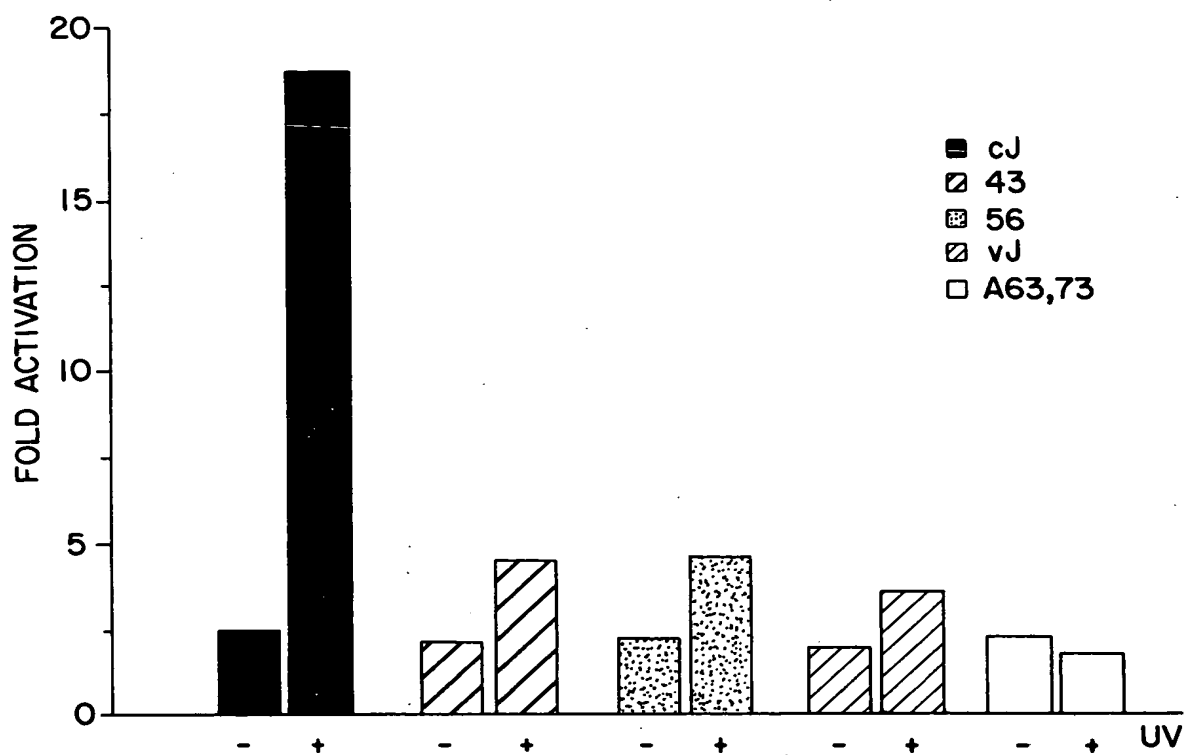


FIG 8B

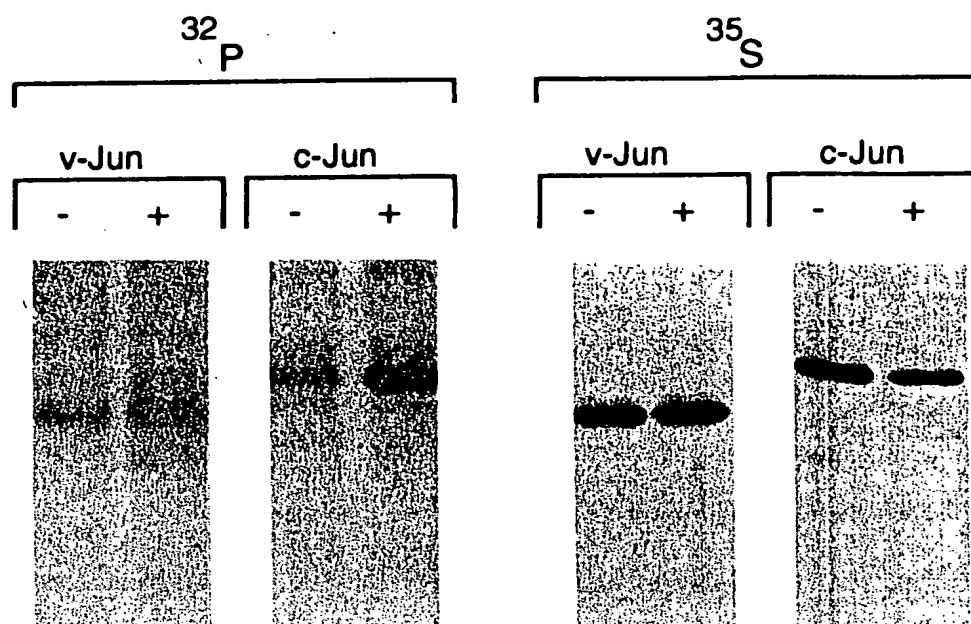


FIG.9A

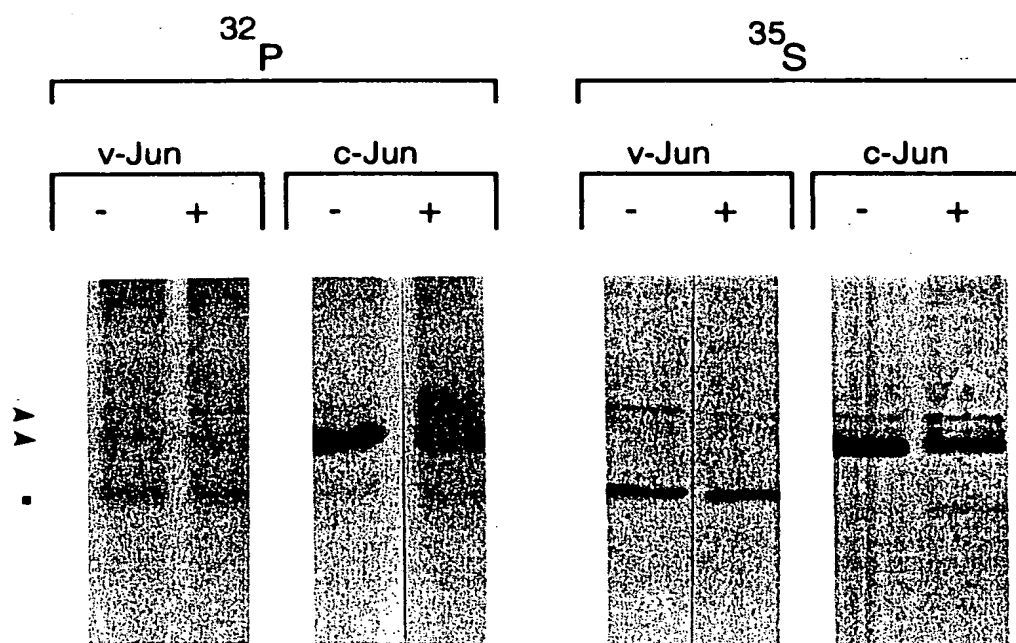


FIG.9B

GAATTCCGGG GCGGCCAAGA CCGCGCGCCG GCGGGCCACT GCAGGGTCCG CACTGATCCG	60
CTCCGGCGGA GAGCCGCTGC TCTGGGAAGT CAGTTCCGCT GCGGACTCCG AGGAACCGCT	120
GCGCACGAAG AGCCGTCAGT GAGTGACCGC GACTTTTCAA AGCCGGGTAG GCGGCGCGAG	180
TCGACAAAGTA AGAGTGCGGG AGGCATCTTA ATTAAACCCTG CGCTCCCTGG AGCAGCTGGT	240
GAGGAGGGCG CACGGGGACG ACAGCCAGCG GGTGCGTGCG CTCTTAGAGA AACTTTCCCT	300
GTCAAAGGCT CCGGGGGGGG CGGGTGTCCC CCGCTTGCCA CAGCCCTGTT GCGGCCCCGA	360
AACTTGTGCG CGCACGCCAA ACTAACCCTCA CGTGAAGTGA CCGACTGTTC T ATG ACT	417
	Met Thr
	1
GCA AAG ATG GAA ACG ACC TTC TAT GAC GAT GCC CTC AAC GCC TCG TTC	465
Ala Lys Met Glu Thr Thr Phe Tyr Asp Asp Ala Leu Asn Ala Ser Phe	
	5 10 15
CTC CCC TCC GAG AGG GGA CCT TAT GGC TAC AGT AAC CCC AAG ATC CTG	513
Leu Pro Ser Glu Arg Gly Pro Tyr Gly Tyr Ser Asn Pro Lys Ile Leu	
	20 25 30
AAA CAG AGC ATG ACC CTG AAC CTG GCC GAC CCA GTG GGG AGC CTG AAG	561
Lys Gln Ser Met Thr Leu Asn Leu Ala Asp Pro Val Gly Ser Leu Lys	
	35 40 45 50

FIG.10A

CCG CAC CTC CGC GCC AAG AAC TCG GAC CTC CTC ACC TCG CCC GAC GTG	609
Pro His Leu Arg Ala Lys Asn Ser Asp Leu Leu Thr Ser Pro Asp Val	65
	60
GGG CTG CTC AAG CTG GCG TCG CCC GAG CTG GAG CGC CTG ATA ATC CAG	657
Gly Leu Leu Lys Leu Ala Ser Pro Glu Leu Glu Arg Leu Ile Ile Gln	80
	75
TCC AGC AAC GGG CAC ATC ACC ACC ACC CGC ACC CCC ACC CAG TTC CTG	705
Ser Ser Asn Gly His Ile Thr Thr Thr Pro Thr Gln Phe Leu	95
	90
TGC CCC AAG AAC GTG ACA GAT GAG CAG GAG GGG TTC GCC GAG GGC TTC	753
Cys Pro Lys Asn Val Thr Asp Thr Glu Gln Glu Gly Phe Ala Glu Gly Phe	110
	105
GTG CGC GCC CTG GCC GAA CTG CAC AGC CAG AAC CAG CTG CCC AGC GTG	801
Val Arg Ala Leu Ala Glu Thr Leu His Ser Gln Asn Thr Leu Pro Ser Val	130
	125
ACG TCG GCG GCG CAG CCG GTC AAC GCG GCA GCG ATG GTG GCT CCC GCG	849
Thr Ser Ala Ala Gln Pro Val Asn Gly Ala Gly Met Val Ala Pro Ala	145
	140
GTA GCC TCG GTG GCA GCG GGC AGC GGC AGC GGC TTC AGC GCC AGC	897
Val Ala Ser Val Ala Gly Ser Gly Ser Gly Gly Phe Ser Ala Ser	160
	155
	150

FIG.10B

CTG CAC AGC AGC GAG CCG CCG GTC TAC GCA AAC CTC AGC AAC TTC AAC CCA Leu His Ser Glu Pro Pro Val Tyr Ala Asn Leu Ser Asn Phe Asn Pro	165 170 175	945
GGC GCG CTG AGC AGC GGC GGC GGC GGC TCC TAC GGC GCG GCC GGC GGC Gly Ala Leu Ser Ser Gly Gly Gly Ala Pro Ser Tyr Gly Ala Ala Gly	180 185 190	993
CTG GCC TTT CCC GCG CAA CCC CAG CAG CAG CAG CCG CCG CAC CAC Leu Ala Phe Pro Ala Gln Pro Gln Gln Gln Gln Pro Pro His His	195 200 205	1041
CTG CCC CAG CAG ATG CCC GTG CAG CAG CCG CCG CTG CAG GCC CTG AAG Leu Pro Gln Gln Met Pro Val Gln His Pro Arg Leu Gln Ala Leu Lys	215 220	1089
GAG GAG CCT CAG ATA GTG CCC GAG ATG CCC GGC GAG ACA CCG CCC CTG Glu Glu Pro Gln Ile Val Pro Glu Met Pro Gly Glu Thr Pro Pro Leu	230 235	1137
TCC CCC ATC GAC ATG GAG TCC CAG GAG CCG ATC AAG GCG GAG AGG AAG Ser Pro Ile Asp Met Glu Ser Gln Glu Arg Ile Lys Ala Glu Arg Lys	245 250 255	1185
CGC ATG AGG AAC CCG ATC GCT GCC TCG AAG TGC CGA AAA AGG AAG CTG Arg Met Arg Asn Arg Ile Ala Ala Ser Lys Cys Arg Lys Arg Lys Leu	260 265 270	1233

FIG.10C

GAG AGA ATC GCC CGG CTG GAG GAA AAA GTG AAA ACC TTG AAA GCT CAG 1281
 Glu Arg Ile Ala Arg Leu Glu Glu Lys Val Lys Thr Leu Lys Ala Gln 290
 275

AAC TCG GAG CTG GCG TCG ACG GCC AAC ATG CTC AGG GAA CAG GTC GCA 1329
 Asn Ser Glu Leu Ala Ser Thr Ala Asn Met Leu Arg Glu Gln Val Ala 305
 295

CAG CTT AAA CAC AAA GTC ATG AAC CAC GTT AAC AGT GGG TGC CAA CTC 1377
 Gln Leu Lys His Lys Val Met Asn His Val Asn Ser Gly Cys Gln Leu 320
 310

ATC CTA ACG CAG CAG TTG CAA ACA TTT TGAAGAGAGA CCGTCGGGGG 1424
 Ile Leu Thr Gln Gln Leu Gln Thr Phe 330
 325

CTGAGGGGCA ACGAAGAAA AAAATAACAC AGAGAGACAG ACTTGAGAAC TTGACAAAGTT 1484

GCGACGGAGA GAAAAAAGAA GTCTCCGAGA ACTAAAGCCA AGGTATCCA AGTTGGACTG 1544

GGTTCGGTCT GACGGCGCCC CCAGTGTGCA CGAGTGGGAA CCACCTGGTC GCGCCCTCCC 1604

TTGGCGTCCA GCCAGGGAGC GGCCGCCCTGG GGGCTGCCCC GCTTTCGGGA CGGGCTGTCC 1664

CCGCGCGAAC GGAACGTTGG ACTTTCGTTA ACATTGACCA AGAACTGCAT GGACCTAACA 1724

FIG.10D

TTCGATCTCA	TTCAGTATTA	AAGGGGGCAG	GGGAGGGG	TTACAACTG	CAATAGAGAC	1784
TGTAGATTGC	TTCTGTAGTA	CTCCTTAAGA	ACACAAAGCG	GGGGAGGGT	TGGGAGGGG	1844
CGGCAGGAGG	GAGGTTTGTG	AGAGCGAGGC	TGAGCCTACA	GATGAAGTCT	TTCTGGCCTG	1904
CTTTCGTTAA	CTGTGTATGT	ACATATATAT	ATTTTAAAT	TTGATTAAAG	CTGATTACTG	1964
TCAATAAACA	GCTTCATGCC	TTTGTAAGTT	ATTCTTGT	IGTTTGTG	GGATCCCTGCC	2024
CAGTGTTGTT	TGTAAATAAG	AGATTGGAG	CACTCTGAGT	TTACCATTTG	TAATAAAGTA	2084
TATAATTTT	TT					2096

FIG.10E

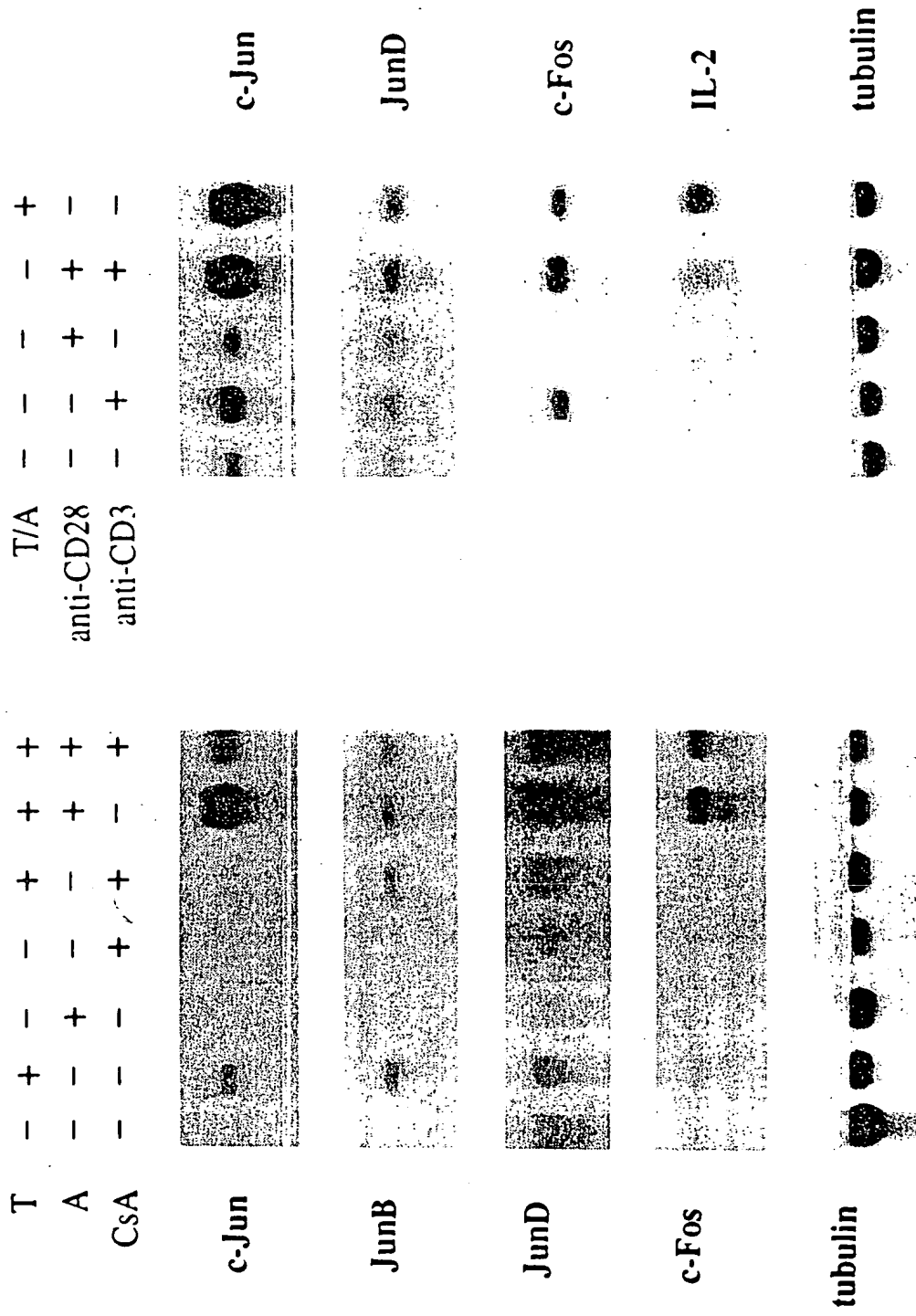


FIG.11A

FIG.11B

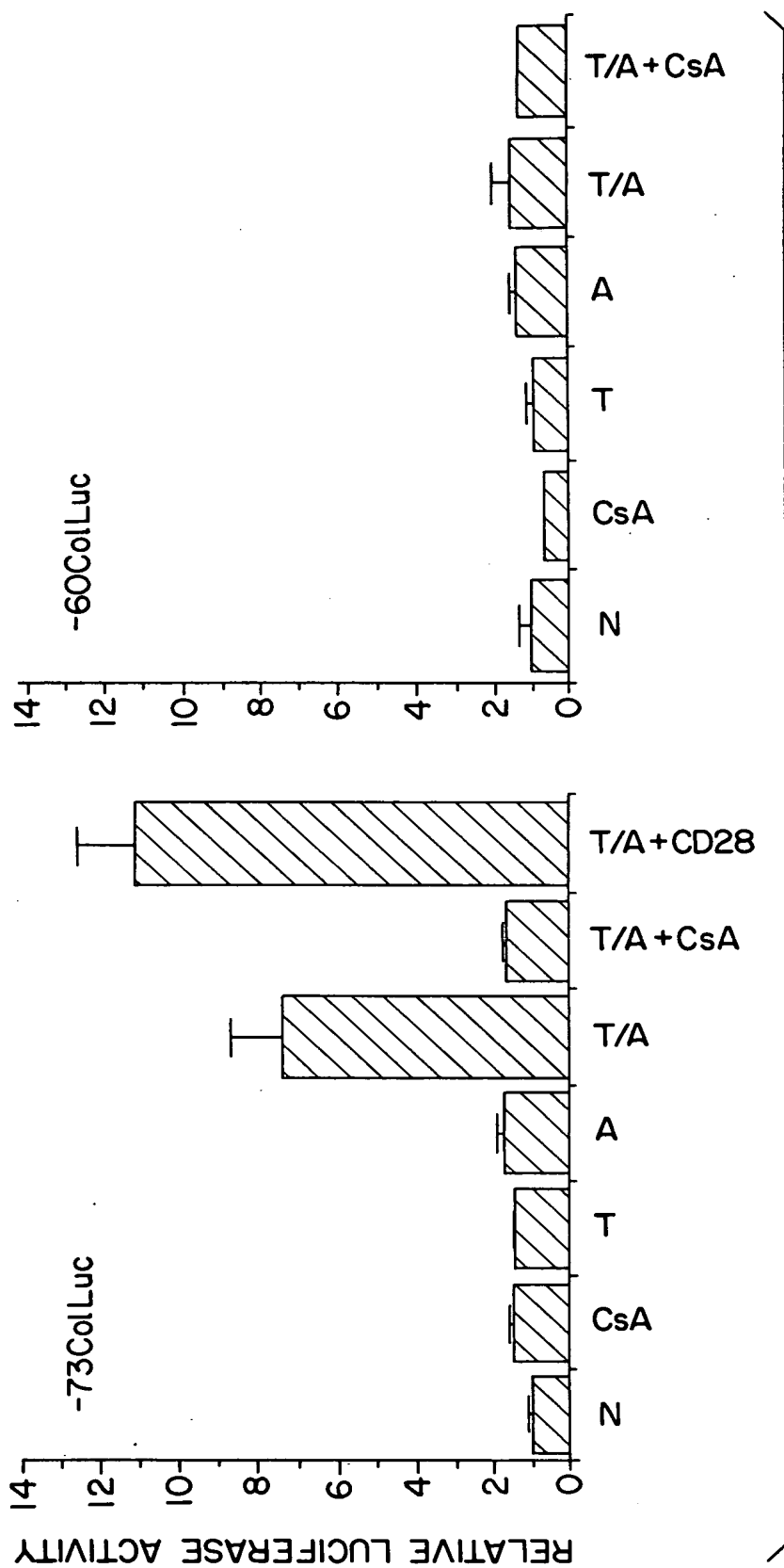


FIG.11C

FIG.12A

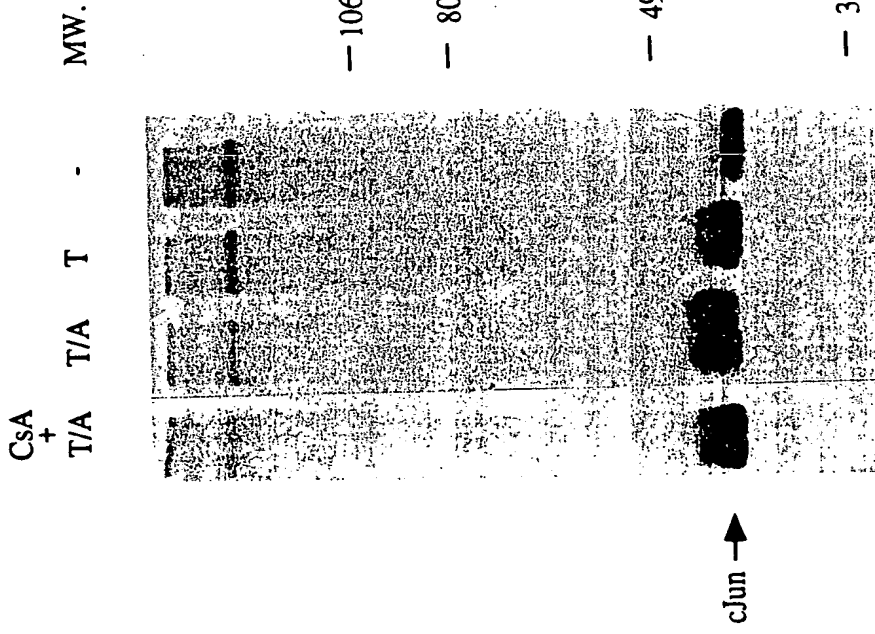
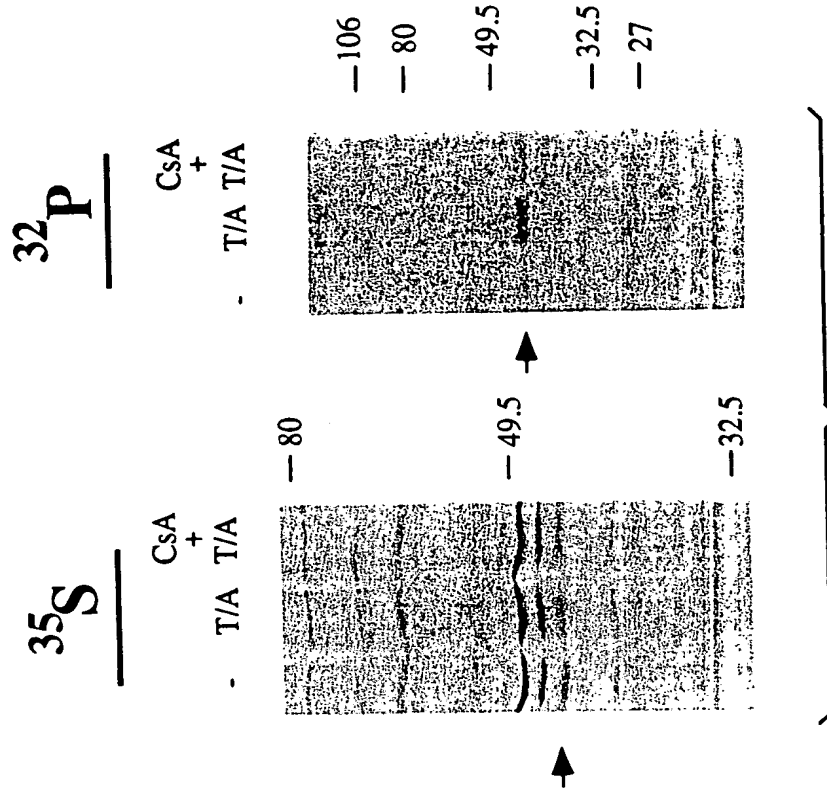


FIG.12B



00150200 00205T60

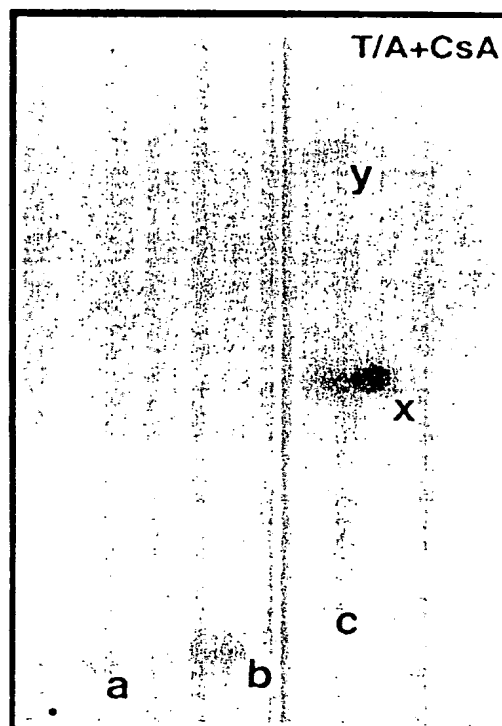
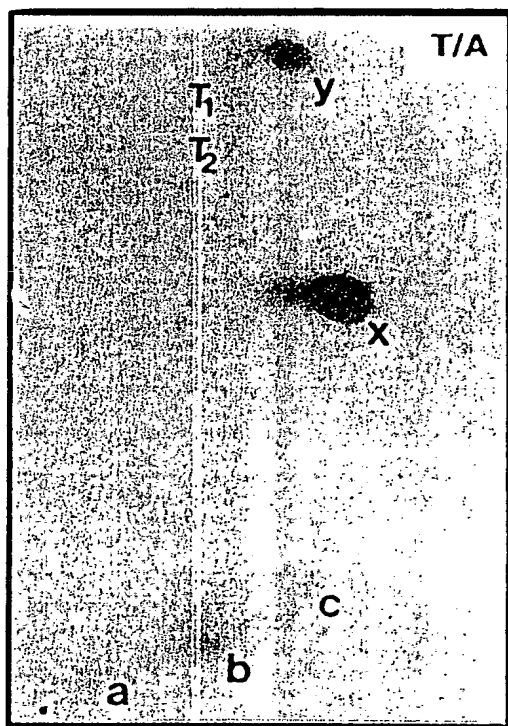
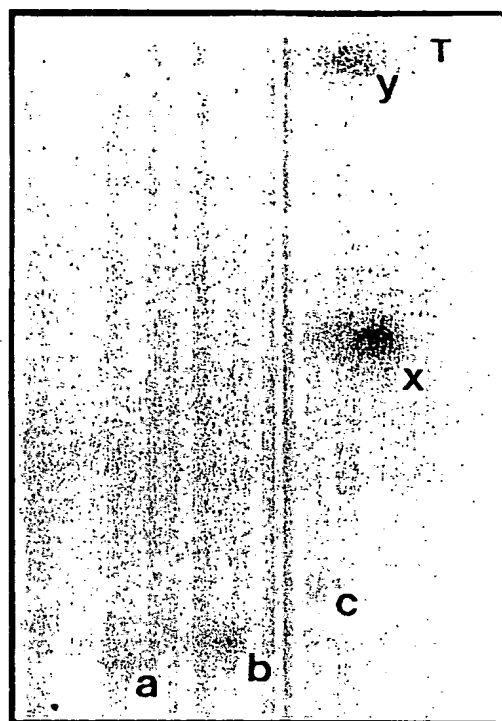
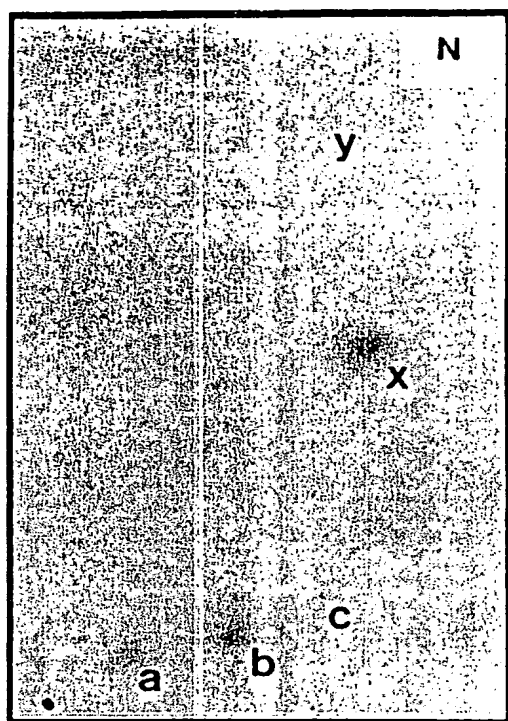


FIG.12C

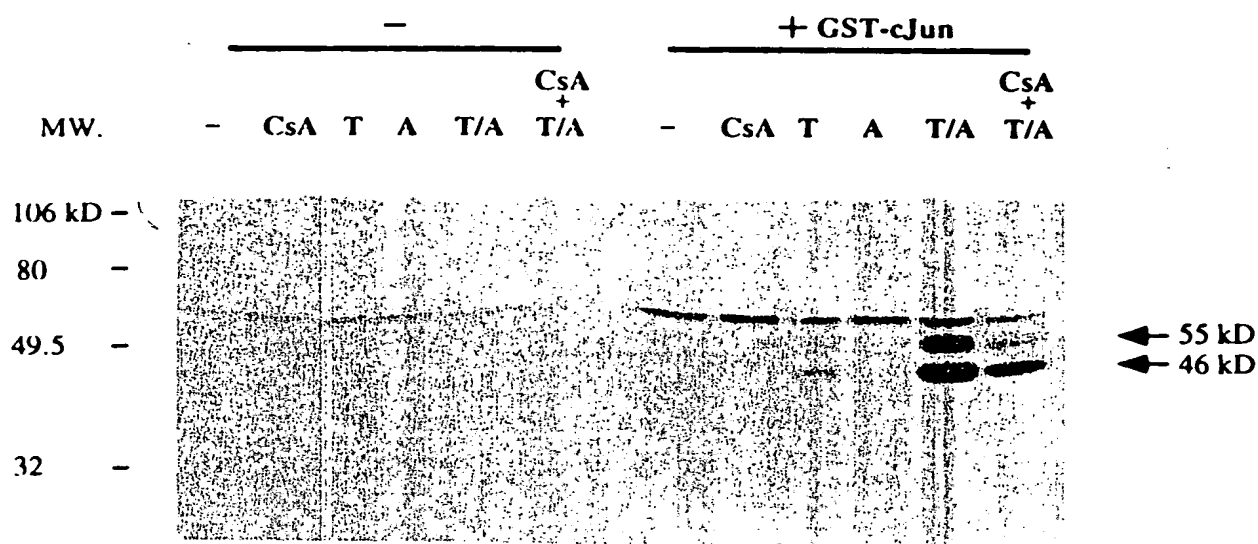


FIG.13A

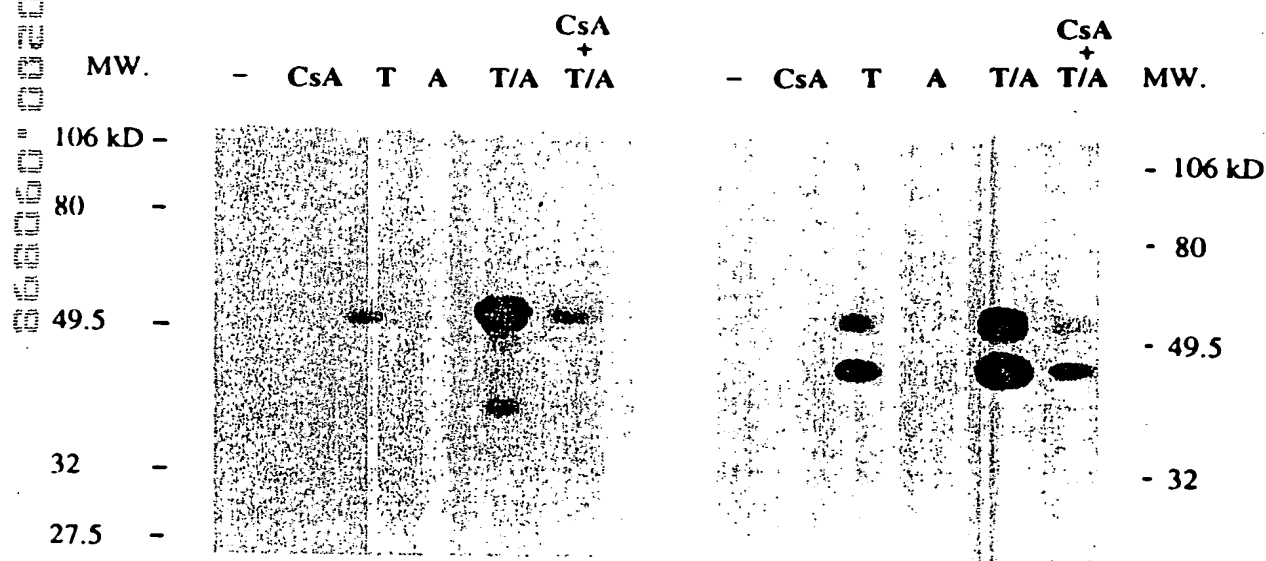


FIG.13B

FIG.13C

5

FR3T3

PC12

	T	A	T/A	T/A	C _S A ₊
--	---	---	-----	-----	-------------------------------

$$- \frac{C_{SA}}{T} + \frac{T/A}{T/A} \cdot \frac{T/A}{T/A}$$

CV-1

Thymus

-	T	$C_s A$	$C_s A$
		T	T/A
		T/A	T/A

	T	A	T/A	T/A	CsA ⁺
1	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00
59	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00
61	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.00	0.00	0.00
63</					

FIG. 14

FIG.15A

Erk-1 Mut →

- CsA T A T/A T/A
MW.

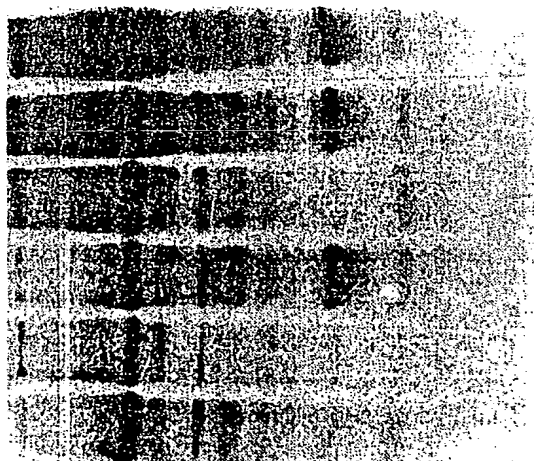


FIG.15C

Erk-1 Mut →

- T A T/A T/A
MW.

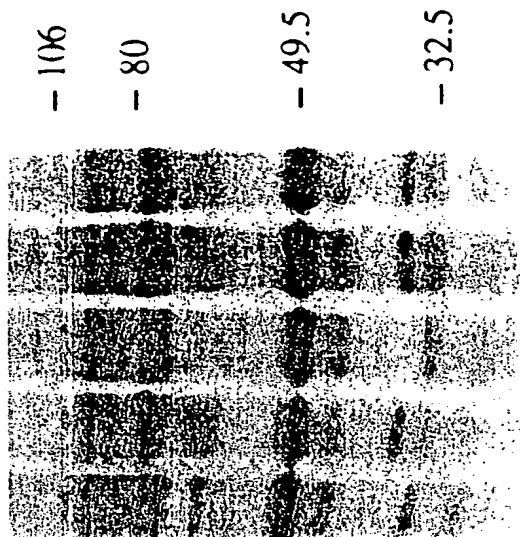


FIG.15B

MBP →

FIG.15D

MBP →

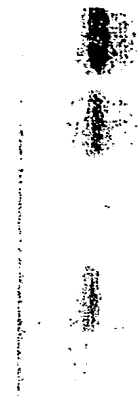


FIG.16A

CsA	+	-	-	-	-
anti-CD28	+	+	-	+	-
anti-CD3	+	+	+	-	-

JNK(55) →

JNK(46) →

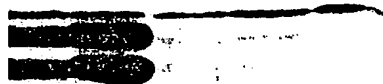


FIG.16B

CsA	-	-	-	-	+
anti-CD28	-	-	+	+	+
anti-CD3	-	+	-	+	+

GSTcJun →

MBP →

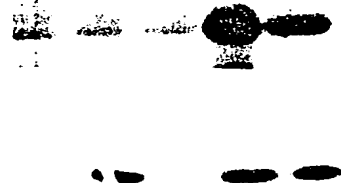
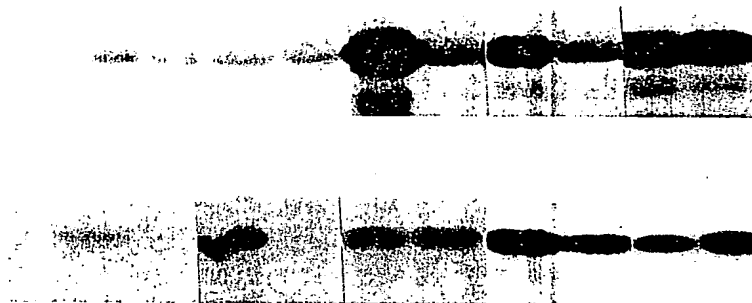


FIG.16C

	1	2	3	4	5	6	7	8	9	10	11
CsA	-	-	-	-	-	-	+	-	+	-	+
anti-CD28	-	-	-	-	+	-	-	-	-	+	+
anti-CD3	-	-	-	+	-	-	-	+	+	-	-
A	-	-	+	-	-	+	+	-	-	-	-
T	-	+	-	-	-	+	+	+	+	+	+

GST-cJun →

MBP →



0015000 00205760

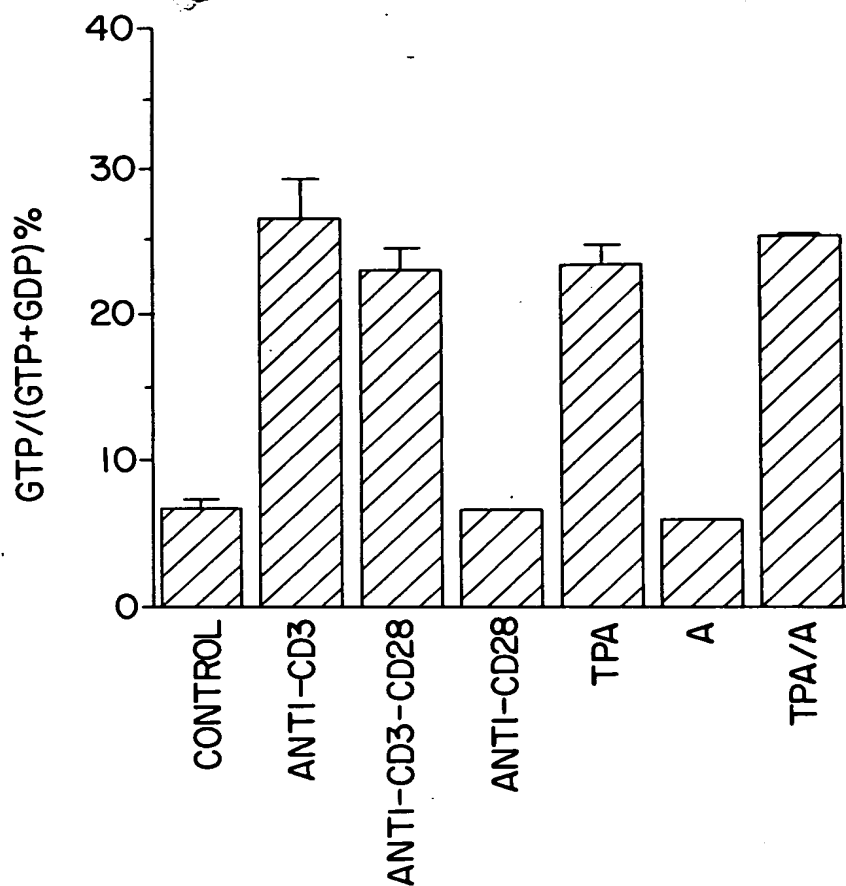


FIG. 17A

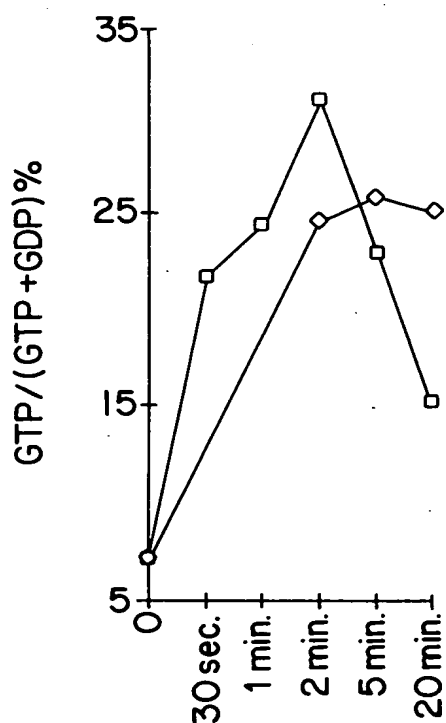


FIG. 17B